

Soudan Minecrew Hiring Plan

WBS 2.4 and 3.4

Version 1.9

D. Ayres, W. Miller, E. Peterson

- **Current status – November 2000**

In November 2000 the Soudan minecrew consists of 9 FTE employees. This work force is employed as follows: 3 FTEs maintain the lab infrastructure, 1.5 FTE's operate the Soudan 2 detector, 3.5 FTEs work on MINOS tasks, including monitoring the excavation contractor 7 days/week, 24 hours/day, and 1 FTE works on the CDMS experiment. In order to cover 21 shifts per week of excavation work, a minimum crew of 5 is necessary (including the person to cover illness, travel and vacation).

The MINOS crew has many responsibilities: Bill Miller is Laboratory Supervisor, Jerry Meier is responsible for safety documentation and communications/computer and acts as Assistant Laboratory Supervisor when Bill Miller is not available. Other crew members work on modifications to the laboratory required for the MINOS outfitting task: e.g., material moves to clear the floor for the Soudan 2 Hall Mezzanine construction, and reworking the north end of the Soudan 2 veto shield to provide a second mezzanine egress.

- **Ramp-up**

In order to continue coverage of excavation shift work and oversight of the outfitting work the minecrew must stay at the current level of 9. The network/computer/electronics specialist hired in July has freed up Meier to work on other tasks. The minecrew will continue to cover 3 shifts/day 7 days/week until Dec. 15th when we will switch to 1 shifts/day. Early in 2001 we plan to hire one additional person – an administrative aide - who will be the office staff person during installation and operation. We will then have an in-place MINOS and Lab infrastructure minecrew in the top three levels of the organization chart of the Laboratory Supervisor – Miller; an Assistant Laboratory Supervisor – Meier, the administrative aide and 3 of the 6 Crew Bosses. The organization chart is shown at the end of this document.

We are currently working with Human Resources at the University of Minnesota to match MINOS job descriptions with existing University job classifications. We will add new job classifications, as needed. The following charts show the total minecrew FTE levels that we plan to have in place on particular dates during the ramp-up period. The charts show the maximum work force that we estimate could be needed for installation. We will determine the final crew size during the July-August 2001 half-rate construction period before completing the hiring needed for full production.

Maximum Underground Lab FTE Ramp up

	10/1/00	1/1/01	4/1/00	5/1/00	6/1/01	7/1/01	8/1/01	9/1/01
WBS 2.4	3.5	4.5	8.5	9.5	14.5	23.5	33.5	36.5
WBS 3.4 & 4.1	3	3	3	3	3	3	3	3
Soudan2	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
CDMS	1	1	1	1	1	1	1	1
Total	9	10	14	15	20	29	39	42

FTE Job Classes for WBS 2.4 Installation Task

	10/1/00	1/1/01	4/1/00	5/1/00	6/1/01	7/1/01	8/1/01	9/1/01
Administrative Aide		1	1	1	1	1	1	1
Coordinator	1	1	1	1	1	1	1	1
Crew Boss	2.5	2.5	3.5	4.5	4.5	4.5	5.5	6
Assembler					2	6	10	12
Welder			1	1	1	1	2	2
Material Mover			2	2	4	5	8	8.5
Tester						3	3	3
Plane installer					1	1	3	3
Totals	3.5	4.5	8.5	9.5	14.5	23.5	33.5	36.5

FTE Job Classes for WBS 3.4 & 4.1 Lab Infrastructure

	10/1/00	1/1/01	4/1/00	5/1/00	6/1/01	7/1/01	8/1/01	9/1/01
Lab Supervisor	1	1	1	1	1	1	1	1
Electronics Tech	1	1	1	1	1	1	1	1
Lab facilities Tech	1	1	1	1	1	1	1	1
Totals	3	3	3	3	3	3	3	3

FTE Job Classes for CDMS and Soudan 2

	10/1/00	1/1/01	4/1/00	5/1/00	6/1/01	7/1/01	8/1/01	9/1/01
Lab Tech Soudan	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Supervisor CDMS	1	1	1	1	1	1	1	1
Totals	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5

Job descriptions-See Org Charts at end of document

Supervisor- (Bill Miller) The Laboratory Supervisor is the manager of lab infrastructure, which includes MINOS, Soudan 2 and CDMS. The supervisor provides the interface between workers, scientists, engineers, and DNR at Soudan. He has the on-site responsibility for the General Operations budget, which covers materials and services required to maintain the safe and efficient operation of the Laboratory. He submits monthly expenditure reports to Fermilab.

University of Minnesota jobs class: 7205- SP Executive Assistant.

Coordinator- (Jerry Meier) The Coordinator is the Assistant Laboratory Supervisor, covering for periods when the Supervisor is unavailable. He is also the Laboratory Safety Officer. He is available, as is the Supervisor, to bridge the day and evening shifts to provide coordination and direction as needed.

University of Minnesota jobs class: 7205- SP Executive Assistant

Administrative Aide- (not hired) The Administrative Aide performs necessary office functions for the laboratory. He/She prepares the payroll, is in charge of ordering laboratory supplies and maintaining the day-to-day expense budget as well as monthly reports. He/She will assist in the hiring program during the ramp-up period

University of Minnesota jobs class: 7200- SP Administrative Aide, 1808- CU Accounts Specialist, 1823- CU Office Specialist

Crew Boss- (Brian Anderson, Bruce Farkas, Jack Zorman, 3 not hired) The six Crew Bosses manage daily activities of steel and scintillator installation workers and provide a smooth transition between shifts. One crew boss is assigned to each of the two workstations and one to the material handling crews (in the surface building) for each shift. Each Crew Boss provides an interface between the Supervisor and coordinator and the installation crews and acts as a foreman and general replacement worker when others are sick or on vacation. The Crew Bosses are also the principal crane operators and troubleshooters. They will record barcode information for each plane as well as any other data relating to it. As foremen, they will be responsible for assuring safe work areas and operations. One underground Crew Boss will be designated as the lead Crew Boss, to be in charge when both Supervisors are absent.

University of Minnesota jobs class: 4986- Principal Research Shop Forman, 4984- SP 4982- Laboratory Machinist Specialist, TU Laboratory Machinist, 4961- TU Engineering Assistant, 6053- Senior General Mechanic, **May need a Construction Foreman position or something like that**

Welder- (Not hired) The two Welders perform plug welding of planes and a small number of other specialized welding tasks. They will assist in other operations as needed and provide spot checks of routine operations. One Welder covers the welding needs of both workstations, one on each shift.

University of Minnesota jobs class: 6013- Senior Maintenance Welder, 6009- Maintenance Welder, 4982- TU Laboratory Machinist

Assembler- (Not hired) The twelve Assemblers assemble steel plates and scintillator modules into detector planes. They are responsible for all testing and repairs on the plane before it goes up. They will primarily work at the two assembly workstations.

University of Minnesota jobs class: 6012- Laborer, 6014- Senior Laborer, 4945-Senior Lab Technician, 4946- Principal Lab Technician, 4982-TU Laboratory Machinist, 4981- TU Assistant Lab Machinist

Material Movers- (Not hired) The eight Material Movers are organized as follows:

Receiving Crew-2: Receive steel and scintillator crates at the surface receiving facility. Sort steel, weigh and package into bundles for moving underground. Day shift.

Surface Crew-3: Transport steel and scintillator from the Surface Building to headframe. Load shaft cage with arriving materials and assist in cage swap. This is an afternoon shift.

Underground Crew-3: Unload and transport arriving materials to appropriate areas. This is an afternoon shift.

University of Minnesota jobs class: 6012- Laborer, 6014- Senior Laborer, 6051- Crane Operator, 6050 Heavy Equipment Operator, 6095- SU Delivery Service Driver

Plane Installer- (Not hired) The three Plane Installers connects fiber optics cables to the MUX boxes after planes are mounted. They assist physicists with detector-plane survey, with the installation of electronics crates and cabling, and with the calibration and turn-on of detector planes. They also assist with the installation of MUX boxes, high voltage, low voltage, and AC and DC power systems.

University of Minnesota jobs class: 4945-Senior Lab Technician, 4946-Principal Lab Technician, and 4975-Electronics Technician, 4961- TU Engineering Assistant, 8350/7350 PR/SP Junior Scientist, 7944-Junior Lab Technician

Tester- (Not hired) Technicians assist physicists in testing, sorting and repairs of scintillator modules after they come underground. Assists in the survey task and helps move scintillator modules from the Soudan Hall to the MINOS workstations.

University of Minnesota jobs class: 4945-Senior Lab Technician, 4946-Principal Lab Technician, 7944-Junior Lab Technician, 4975- Electronics Technician

Electronics Technician- (Dave Saranen) The Electronics Technician maintains the LAN, computer systems and phone systems. He also assists with the installation and maintenance of MUX boxes, high voltage, low voltage, and AC and DC power systems.

University of Minnesota jobs class: 4978-Digital Equipment Service Specialist

Laboratory Facilities Technician- (Gregg Benson) The laboratory facilities technician assists with maintenance of the lab infrastructure and performs various janitorial duties.

University of Minnesota jobs class: 8350/7350 PR/SP Junior Scientist

Laboratory Technician Soudan 2- (Don Carlson) Lead technician for the continued running of the Soudan 2 detector. He does all daily and monthly detector checks. Maintains gas, HV, LV and electronics systems.

University of Minnesota jobs class: 4946-Principal Lab Technician

CDMS II Detector Supervisor- (Jim Beaty) His job is to provide oversight for the construction of the remaining detector support buildings, as well as assisting physicists in the construction and operation of the new detector. He will be in charge of daily detector checks to maintain operation. He assists in the coordination of the visiting physicists and engineers to insure equipment needed is on site.

University of Minnesota jobs class: 7086- Mechanical Construction Superintendent

- **Startup Period – Half-rate installation – 7/3/01 till 10/01/01**

When this period starts the Supervisor, Coordinators, three Crew Bosses and about 11 of the technicians will have been hired. The average installation rate is about 3 planes/week during this period. During these 60 working days the staff is increased to the full level. The installation crews will work 2 shifts/day 5 days per week. Final adjustments will be made to the crew sizes during this period as construction progresses. It is hoped that a crew size that is smaller than 42 people, which is used for planning purposes in this document, will be adequate.

- **Full Rate Installation – Full-staff level – 10/01/01 till 8/2/03**

This period of full-rate installation lasts about two years. The full minecrew consists of 42 FTE's: WBS 2.4 Installation, WBS 3.4 Laboratory Infrastructure, as well as minecrew members who operate the Soudan 2 and CDMS detectors.

- **Completion of Installation – August 03**

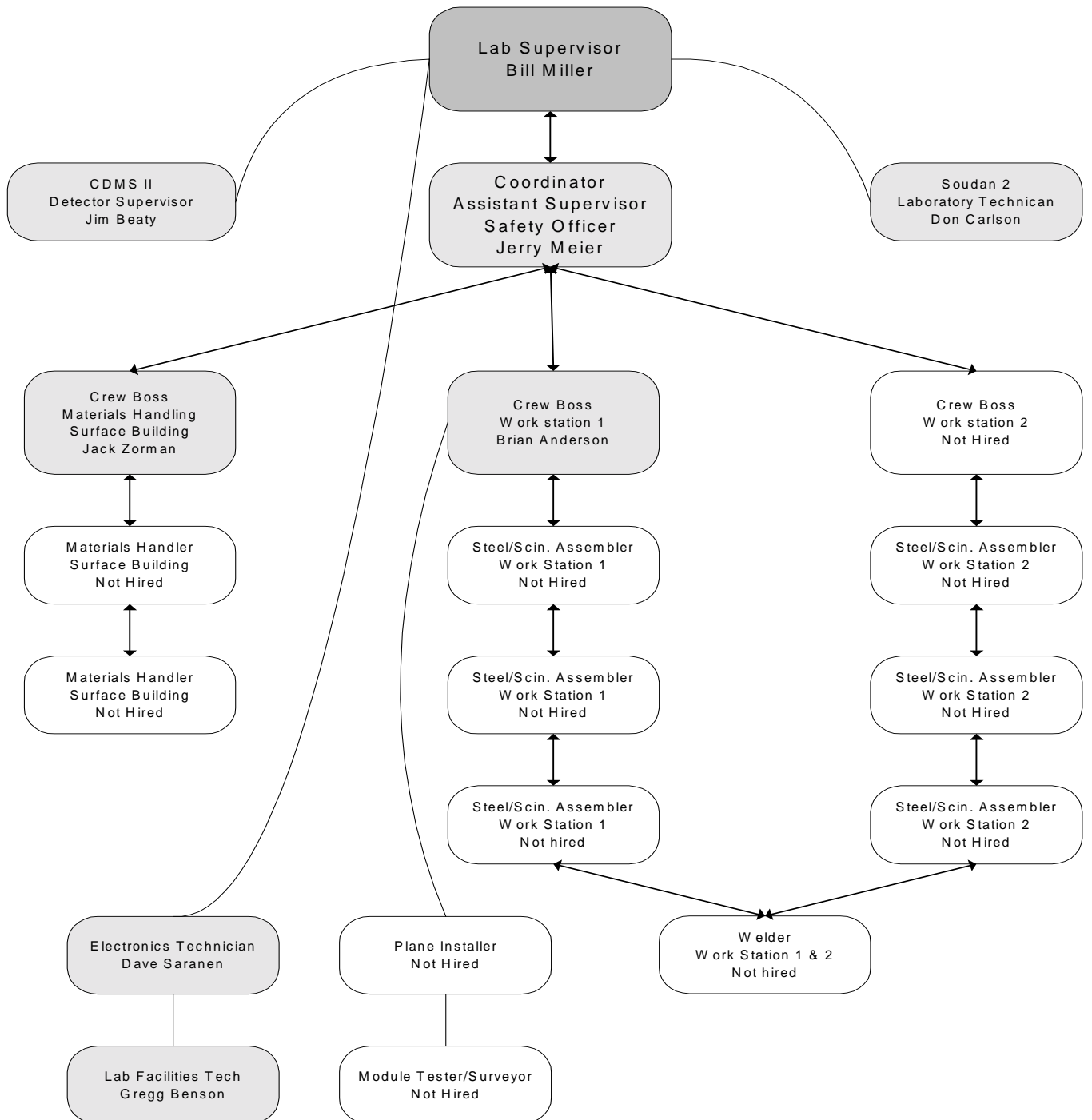
We will notify all job applicants that jobs will last only approximately 2 ½ years. We must layoff the majority of staff in August 2003. Each job position will be offered specifically for day or afternoon shift. Most of the material mover positions must be on the afternoon shift so as not to interfere with Park tourists.

Pay Ranges for job positions

This is the average take home pay before taxes, and the cost including fringe (30%) but not overhead rates. This also does not include shift differential of \$.55/hr, which must be paid to minecrew working the second shift.

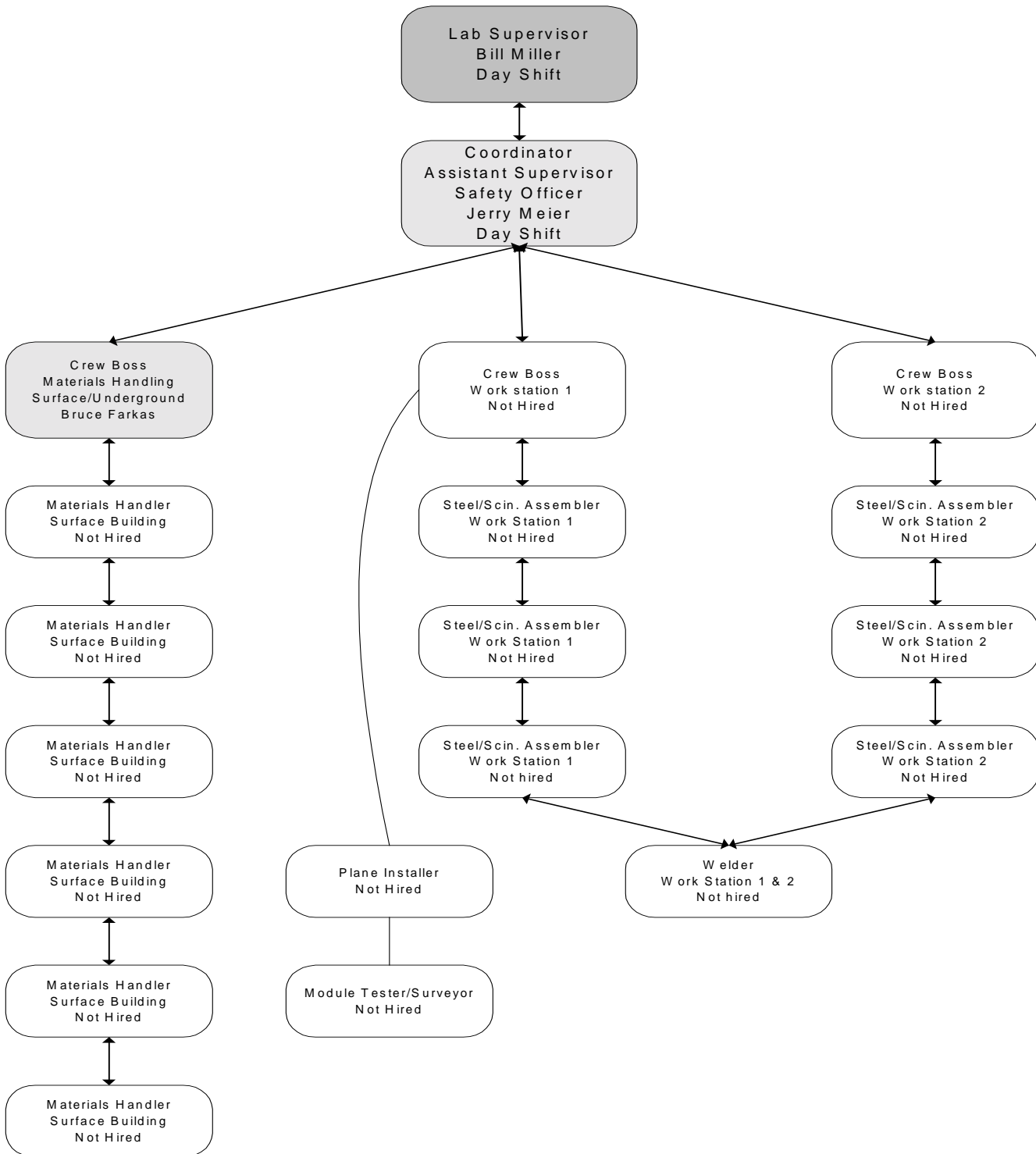
Job Class	Wage	Wage + fringe
Administrative Aide	\$11.25	\$16/hr
Crew Boss	\$18.50	\$26/hr
Welder	\$15.50	\$22/hr
Assembler	\$11.25	\$16/hr
Material Movers	\$15.50	\$22/hr
Plane Installer	\$14.00	\$20/hr
Tester	\$15.50	\$22/hr
CDMS Supervisor	\$19.50	\$28/hr
Lab Electronics Tech	\$17.00	\$24/hr
Soudan 2 Tech	\$17.75	\$25/hr
Laboratory Facilities Tech	\$17.00	\$24/hr

Soudan Lab Organizational Chart Day Shift



Soudan Lab Organizational Chart

Afternoon Shift



Appendix:-U of M Job Classifications

SP EXECUTIVE ASSISTANT - 7205

½ Day Extra Vacation in Lieu of Overtime Pay

Probation Period: Probationary Period of 1 Year

Bargaining Unit 1: - not currently represented by a union

Salary Rate by Special Arrangement as Approved

Job Description

5/1/84 This position has a variety of responsibilities in providing assistance to an administrator in one or more specialized areas. TYPICAL TASKS (These examples do not include all possible tasks in this work and do not limit the assignment of tasks in any position of this class.) Regular, On-Going Tasks Conducts studies and makes recommendations in such areas as: accounting, organization and staffing, building space utilization, equipment and materials purchasing, business systems, and methods of operation. Conducts research into administrative problems. Gathers related data, analyzes past and current practices, and recommends possible solutions. Serves as information gathering representative at meetings and conferences. Acts as representative of administrator on specifically assigned matters. Completes University and external reports. Gathers and interprets data. Conducts statistical analyses. Assists in implementation of administrative changes; may be primary expediter of change. SUPERVISION Positions with full supervisory authority should be classified as 7205 SP Executive Assistant.

REQUIRED QUALIFICATIONS Bachelor's degree in business administration or a combination of education and relevant administrative experience to total five years. Additional qualifications may be required, depending upon the nature of the position.

**PR ADMINISTRATIVE AIDE – 8200 and
SP ADMINISTRATIVE AIDE - 7200**

½ Day Extra Vacation in Lieu of Overtime Pay

Probation Period: Probationary Period of 1 Year

Bargaining Unit 1: 120 = Non-Instructional Professional Unit - not currently represented by a union

Job Group: A - Exempt

Point Range: 1451 - 1600

Salary Range		Annual	Hourly
A06	MIN	25126	12.08
	MID	33488	16.10
	MAX	41850	20.12

Job Description

7/1/86 This position is a first level exempt administrative position responsible for such areas as: procurement, personnel, supervision, facilities management, finance, development, student affairs, and publications and/or media resources procurement, limit the assignment of related tasks in any position of this class. **TYPICAL TASKS** (These examples do not include all possible tasks in this work and do limit the assignment of related tasks in any position of this class.) Regular, On-Going Tasks Supervises and controls records maintenance. Acts as liaison to the administrator and other staff members on various problems and at selected meetings. Assists in solving operational problems and employee complaints and grievances. Assists in preparing budgets and monitoring account expenditures. Makes recommendations and coordinates the use of facility services and equipment. Interprets and applies administrative policies; establishes procedures. Establishes and applies appropriate operational procedures. **SUPERVISION** Positions in this class have the authority to perform or effectively recommend the following actions: hire, transfer, suspend, promote, discharge, assign work, reward, discipline, direct the work of other employees, and adjust grievances.

REQUIRED QUALIFICATIONS Bachelor's degree in Business Administration or a combination of education and relevant administrative experience to total four years.

CU ACCOUNTS SPECIALIST - 1808

Classification Number: 1808

Probation Period: Probationary Period of 6 Months

Bargaining Unit 1: 060 = Clerical and Office Unit - represented by AFSCME Council 6

Job Group: A - Non-Exempt

Point Range: 1376 - 1525

Salary Range		Annual	Hourly
C00	MIN	22838	10.98
	MID	29058	13.97
	MAX	35277	16.96

Job Description

4/1/90 This position is the third level in accounting service positions with responsibility for maintaining the accounts functions of any unit throughout the University system. **TYPICAL TASKS** (These examples do not include all possible tasks in this work and do not limit the assignment of related tasks in any position of this class.) Regular, On-Going Tasks; Performs accounting procedures to provide record maintenance for the unit. Prepares and reviews detailed financial documents and compiles information for financial reports. Maintains payroll, vacation and sick leave records and completes appropriate documentation. Performs other accounting functions of similar scope and complexity. **SUPERVISION** Positions in this classification may have the authority to perform or effectively recommend any of the following actions: hire, transfer, suspend, promote, discharge, assign work, reward, discipline, direct the work of other employees, and adjust grievances.

REQUIRED QUALIFICATIONS Applicants for positions in this class should have business training, university level education, and/or bookkeeping experience totaling three years. Required skills may include double entry bookkeeping and accounting practices.

CU OFFICE SPECIALIST - 1823

Probation Period: Probationary Period of 6 Months

Bargaining Unit 1: 060 = Clerical and Office Unit - represented by AFSCME

Point Range: 1351 - 1525

Salary Schedule: C / 00

Salary Effective: 6/19/00

Salary Range		Annual	Hourly
C00	MIN	22173	10.66
	MID	28247	13.58
	MAX	34320	16.50

Job Description

6/1/87 CONCEPT OF CLASS Office Specialist positions are third level office service positions. Positions in this class have discretionary authority or independent responsibility for office services, or programs in an office, or for the operations of and services provided by small offices having more than one office service position. Positions in this class are distinguished from higher and lower level office service classes through job analysis. INDEPENDENCE Positions in this class receive little supervision. After orientation and minimal initial training, work assignments are received through general discussion in terms of job responsibilities where accountability is expected. SUPERVISION Positions in this class may have full supervisory responsibility for full time equivalent employees, and may have coordinating responsibility for several more.

QUALIFICATIONS AND PROFICIENCIES REQUIRED Applicants for positions in this class are expected to have basic office service job skills. Applicants are also expected to have knowledge and understanding of office operations and procedures. Various specific knowledge or skills may be required of individual positions such as: bookkeeping or account keeping, correct editorial formats, University budget procedures, some ability to type, etc. Applicants for positions in this class should have at least two years of office service experience and/or training beyond high school. Experience should be progressively more responsible and may require some supervisory experience.

STANDARDS OF PERFORMANCE EXPECTED Employees in this class may be expected to meet the expectations of a particular office in order to be granted continuing appointments. Such employees may be expected to assume responsibility for the drafting of acceptable correspondence emanating from the office, accurate and current account balances, accurate and timely business and personnel documentation, timely expediting of all seminar and conference arrangements, acceptable production of conference and seminar materials and bulletins, and a complete understanding of the services provided by the job.

SP LABORATORY MACHINIST SPECIALIST - 7984

Probation Period: Probationary Period of 6 Months

Bargaining Unit 1: 130 = Supervisory Employees Unit - not currently represented by a union

Point Range: 1626 – 1800

Salary Range		Annual	Hourly
C28	MIN	29973	14.41
	MID	40404	19.43
	MAX	50835	24.44

Job Description

6/1/87 This position has responsibility for complex project planning, consultation, and completion as well as operation of equipment and apparatus. Positions in this class are distinguished from higher or lower level classes through job analysis. TYPICAL TASKS (These examples do not include all possible tasks in this work and do not limit the assignment of related tasks in any position of this class.) Regular, On-Going Tasks Designs, lays out, and builds complex instruments and components. Assists in the supervision of other machinists and mechanics in the construction of various components. May serve as second in command or relief foreman. Performs all basic duties required of a Senior Laboratory Machinist. Fabricates parts, assemblies, apparatus, and complex systems of equipment working from blueprints, sketches, or by consultation. Prepares design of complicated devices, apparatus, and instruments in consultation with research or teaching staff by making drawings for self or others, by selecting and specifying commercial components, by specifying working tolerances, materials, fabrication procedures and by making cost estimates. Repairs a variety of laboratory, teaching, diagnostic, clinical, or research apparatus, instruments, or instrumentation by performing trouble-shooting of the malfunction. Designs and supervises the construction of special precision tools, jigs, dies, and fixtures as required to construct the specific precision instruments. Checks specifications of components made by others to be used in the final assembly. Performs heliarc welding on copper, stainless steel, aluminum and magnesium for ultra high vacuum systems or upper atmosphere instruments. Prepares components with gold and other metals for vacuum brazing and sealing. Performs arc and gas welding. SUPERVISION May have the authority to hire, transfer, suspend, promote, discharge, assign work, reward, discipline, and direct the work of other employees.

REQUIRED QUALIFICATIONS High school graduation, vocational school or formal apprenticeship in machine shop practices and methods and eight years experience as a journey level machinist in a model shop or other extensive varied work experience in machine shops should provide the necessary background for this work. Preferably, the experience would include considerable specialization in the machining and building of complex instruments or prototypes.

SU SENIOR GENERAL MECHANIC - 6053

Probation Period: Probationary Period of 720 Hours - Straight Time

Bargaining Unit 1: 030 = Service, Maintenance, and Labor Unit - represented by Teamsters Local 320

Salary Range		Annual	Hourly
B00	MIN	31262	15.03
	MID	34798	16.73
	MAX	38334	18.43

Job Description

4/1/90 This position performs skilled tasks in a number of areas including carpentry, steam fitting, plumbing, electrical work, metal work, and the operation, maintenance, and construction of equipment. TYPICAL TASKS (These examples do not include all possible tasks in this work and do not limit the assignment of related tasks in any position of this class.) Regular, On-Going Tasks Serves as lead worker and participates in the work of a crew of mechanics, utility workers, and student helpers, or performs highly skilled construction and/or maintenance. Issues job instructions to subordinate workers. Schedules work and keeps track of hours worked, work orders, and inventory. Provides technical advice to workers as needed. Performs skilled maintenance or repair on technical projects and assignments. Designs, builds, or repairs research devices and equipment. Prepares specifications, cost estimates, alternative applications, and other records and proposals as needed. Maintains, repairs, and troubleshoots specialized equipment, switches, controls, and electronic controllers. Follows detailed work orders, plans, and drawings. Finishes cement; installs and maintains plumbing; performs electrical work; builds room partitions, cabinets, desks, tables, etc.; paints interior and exterior portions of buildings and other structures; plasters walls; cuts, welds, bends, shapes, and tempers metals; machines tool parts and equipment. SUPERVISION Positions in this classification may act as lead workers over other employees and may plan or schedule work, make assignments, train and instruct, review performances, or otherwise direct other employees. Positions in this classification are not full PELRA supervisors.

REQUIRED QUALIFICATIONS Vocational technical education in mechanical work and mechanical work experience to total four years, or training and/or experience in specialized mechanical work to total four years.

TU LABORATORY MACHINIST SPECIALIST - 4984

Probation Period: Probationary Period of 6 Months

Bargaining Unit 1: 070 = Technical Unit - represented by AFSCME Council 6

Point Range: 1626 – 1800

Salary Range		Annual	Hourly
C00	MIN	31616	15.20
	MID	41507	19.96
	MAX	51397	24.71

Job Description

6/1/87 This position has responsibility for complex project planning, consultation, and completion as well as operation of equipment and apparatus. Positions in this class are distinguished from higher or lower level classes through job analysis. TYPICAL TASKS (These examples do not include all possible tasks in this work and do not limit the assignment of related tasks in any position of this class.) Regular, On-Going Tasks Designs, lays out, and builds complex instruments and components. Assists in the supervision of other machinists and mechanics in the construction of various components. May serve as second in command or relief foreman. Performs all basic duties required of a Senior Laboratory Machinist. Fabricates parts, assemblies, apparatus, and complex systems of equipment working from blueprints, sketches, or by consultation. Prepares design of complicated devices, apparatus, and instruments in consultation with research or teaching staff by making drawings for self or others, by selecting and specifying commercial components, by specifying working tolerances, materials, fabrication procedures and by making cost estimates. Repairs a variety of laboratory, teaching, diagnostic, clinical, or research apparatus, instruments, or instrumentation by performing trouble-shooting of the malfunction. Designs and supervises the construction of special precision tools, jigs, dies, and fixtures as required to construct the specific precision instruments. Checks specifications of components made by others to be used in the final assembly. Performs heliarc welding on copper, stainless steel, aluminum and magnesium for ultra high vacuum systems or upper atmosphere instruments. Prepares components with gold and other metals for vacuum brazing and sealing. Performs arc and gas welding. SUPERVISION May have the authority to hire, transfer, suspend, promote, discharge, assign work, reward, discipline, and direct the work of other employees.

REQUIRED QUALIFICATIONS High school graduation, vocational school or formal apprenticeship in machine shop practices and methods and eight years experience as a journey level machinist in a model shop or other extensive varied work experience in machine shops should provide the necessary background for this work. Preferably, the experience would include considerable specialization in the machining and building of complex instruments or prototypes.

TU PRINCIPAL LABORATORY MACHINIST - 4983

Probation Period: Probationary Period of 6 Months

Bargaining Unit 1: 070 = Technical Unit - represented by AFSCME Council 6

Point Range: 1451 – 1625

Salary Range		Annual	Hourly
C00	MIN	27394	13.17
	MID	36182	17.40
	MAX	44970	21.62

Job Description

3/1/91 This position has responsibility for project planning, consultation, and completion as well as operation of equipment and apparatus. **TYPICAL TASKS** (These examples do not include all possible tasks in this work and do not limit the assignment of related tasks in any position of this class.) Regular, On-Going Tasks Designs, lays out, and builds complex instruments and components. May assist in the supervision of other machinists and mechanics in the construction of various components. May serve as second in command or relief foreman. Performs all basic duties required of a Senior Laboratory Machinist. Fabricates parts, assemblies, apparatus, and complex systems of equipment working from blueprints, sketches, or by consultation. Prepares design of complicated devices, apparatus, and instruments in consultation with research or teaching staff by making drawings for self or others, by selecting and specifying commercial components, by specifying working tolerances, materials, fabrication procedures and by making cost estimates. Repairs a variety of laboratory, teaching, diagnostic, clinical, or research apparatus, instruments, or instrumentation by performing troubleshooting of the malfunction. Designs and supervises the construction of special precision tools, jigs, dies, and fixtures as required to construct the specific precision instruments. Checks specifications of components made by others to be used in the final assembly. Performs heliarc welding on copper, stainless steel, aluminum and magnesium for ultra high vacuum systems or upper atmosphere instruments. Prepares components with gold and other metals for vacuum brazing and sealing. Performs arc and gas welding. **SUPERVISION** May have the authority to hire, transfer, suspend, promote, discharge, assign work, reward, discipline, direct the work of other employees.

REQUIRED QUALIFICATIONS High school graduation, vocational school or formal apprenticeship in machine shop practices and methods and about six years experience as a journey level machinist in a model shop or other extensive varied work experience in machine shops should provide the necessary background for this work. Preferably, the experience would include considerable specialization in the machining and building of complex instruments or prototypes.

U MAINTENANCE WELDER - 6009

Probation Period: Probationary Period of 720 Hours - Straight Time

Bargaining Unit 1: 030 = Service, Maintenance, and Labor Unit - represented by Teamsters Local 320

Salary Range		Annual	Hourly
B00	MIN	30701	14.76
	MID	34164	16.43
	MAX	37627	18.09

Job Description

This position is responsible for performing all types of welding 51% of the time on a continuing basis.

TYPICAL TASKS (These examples do not include all possible tasks in this work and do not limit the assignment of related tasks in any position of this class.) **Regular, On-Going Tasks** Performs welding jobs such as electric arc, acetylene, electric heliarc on various types of steel, aluminum, stainless steel, cast iron or any type of material where welding is required. Does brazing on brass, bronze, etc. Also does various types of soldering lead type, silver soldering, etc. as required. Performs mechanical work as necessary to gain access to area or piece to be welded. This could be on heavy equipment, machinery, tools, furniture, trailers and trailer hitches. Works closely with trades people, engineers, machinists as to schedules, work required, methods to use and is oriented towards safety at all times. Works with cutting torch in fabricating, dismantling, etc. **SUPERVISION** Non-supervisory but may have a helper when required.

REQUIRED QUALIFICATIONS Three years of full-time experience in welding, which must include substantial experience in electric, acetylene, heliarc welding, brazing and cutting and experience with all types of metal and all hand tools and power tools used in this type of work.

SU SENIOR MAINTENANCE WELDER - 6013

Probation Period: Probationary Period of 720 Hours - Straight Time

Bargaining Unit 1: 030 = Service, Maintenance, and Labor Unit - represented by Teamsters Local 320

Salary Range		Annual	Hourly
B00	MIN	32552	15.65
	MID	36213	17.41
	MAX	39874	19.17

Job Description

This position is responsible for layout and planning of welding work, serving as a lead worker to maintenance welders and helpers and for performing all types of welding 51% of the time on a continuing basis. TYPICAL TASKS (These examples do not include all possible tasks in this work and do not limit the assignment of related tasks in any position of this class.) Regular, On-Going Tasks Lays out work to be done and assigns work to all welders. Acquires all materials, equipment, and hardware needed for each job. Reads structural blueprints and fabricates according to blueprints. Estimates time and materials needed. Checks and approves completion of all related jobs done. Makes suggestions concerning drawings or work to be done. Orders and charges out all material, hardware, equipment needed or used. Performs welding jobs such as electric arc, acetylene, electric heliarc on various types of steel, aluminum, stainless steel, cast iron or any type of material where welding is required. Does brazing on brass, bronze, etc. Also does various types of soldering lead type, silver soldering, etc. as required. Performs mechanical work as necessary to gain access to area or piece to be welded. This could be on heavy equipment, machinery, tools, furniture, trailers, and trailer hitches. Works closely with tradespeople, engineers, machinists as to schedules, work required, methods to use, and is oriented towards safety at all times. Works with cutting torch in fabricating, dismantling, etc. SUPERVISION Serves as lead worker for full-time welders and helpers as necessary.

REQUIRED QUALIFICATIONS Four years of full-time experience in welding, which must include substantial experience in electric acetylene, heliarc welding, brazing and cutting and experience with all types of metal and all hand tools and power tools used in this type of work. Must be able to read and understand blueprints.

SU DELIVERY SERVICE DRIVER - 6095

Probation Period: Probationary Period of 720 Hours - Straight Time

Bargaining Unit 1: 030 = Service, Maintenance, and Labor Unit - represented by Teamsters Local 320

Salary Range		Annual	Hourly
B00	MIN	27144	13.05
	MID	30680	14.75
	MAX	34216	16.45

Job Description

6/1/90 This classification operates a variety of vehicles. **TYPICAL TASKS** (These examples do not include all possible tasks in this work and do not limit the assignment of related tasks in any position of this class.) Regular, On-Going Tasks Operates medium or light trucks that may be equipped with two-way radio, power tailgate, snow plows, or hydraulic garbage packers through heavy metropolitan vehicular and pedestrian traffic as the major portion of job duties. Delivers a wide variety of equipment, supplies, and products from University Storehouses and service departments. Delivers University employees and materials to and from job site. Picks up merchandise or containers for return. Accounts for all merchandise by delivery receipts. Operates dump trucks used to haul a wide variety of material. Operates service trucks loaded with a stock of spare parts and tools for electrical, plumbing, or steam fitting construction and repairs. Issues parts and materials to workers. Keeps an inventory of such parts and materials and reorders as necessary. Operates trucks that collect bioinfectious and animal wastes. Responds to emergency calls broadcast by supervisor/coordinator over short-wave two-way radio. Moves people and materials as necessary to take care of emergency and general repairs and construction. Moves furniture and office equipment into and out of office buildings. Does safety and maintenance checks on assigned vehicle. Keeps daily log of truck activity, including trips made, work order number for charging of labor, and comments on operation of the truck. Informs supervisor of needed repairs. Keeps trucks clean and orderly. **SUPERVISION** This classification is non-supervisory, but may direct the work of laborers.

REQUIRED QUALIFICATIONS Valid Class C Minnesota Drivers License and no chargeable driving offenses within the 12 months preceding employment are the requirements for this classification. Must have a minimum of one year (2088 hours) of professional driving experience such as augmentation to DSD, or pay for driving vehicles such as a bus, truck, or delivery vehicle. Some positions in this classification will require passing of a test demonstrating proficiency in the operation of vehicles with standard transmissions. Employees hired into some positions in this classification will be required to obtain a Class B Minnesota Drivers License to pass probation, and some positions in this classification will require a Class B Minnesota Drivers License for entry into the position.

SU LABORER - 6012

Probation Period: Probationary Period of 720 Hours - Straight Time

Bargaining Unit 1: 030 = Service, Maintenance, and Labor Unit - represented by Teamsters Local 320

Salary Range		Annual	Hourly
B00	MIN	22298	10.72
	MID	24752	11.90
	MAX	27206	13.08

Job Description

5/1/79 This is a first-level, general labor position. **TYPICAL TASKS** (These examples do not include all possible tasks in this work and do not limit the assignment of related tasks in any position of this class.) **Regular, On-Going Tasks** Performs general labor tasks of an unskilled or semi-skilled nature. Load and unload trucks. Move furniture, office equipment, tables, benches, chairs, athletic equipment, refuse, garbage, supplies and various kinds of heavy equipment. Hoe, spade or water garden plots. Cut grass or mow lawns. Shovel snow. Clean streets, gutters, catch basins. Move material. **Irregular/Special Occasion Tasks** Feed or care for livestock. Operate various types of engine-driven equipment such as: lawn mowers, snow blowers, power rakes, small tractors, etc. **SUPERVISION** Positions in this class are under direct supervision. They are non-supervisory in nature.

REQUIRED QUALIFICATIONS None.

TU LABORATORY MACHINIST - 4982

Probation Period: Probationary Period of 6 Months

Bargaining Unit 1: 070 = Technical Unit - represented by AFSCME Council 6

Point Range: 1451 – 1625

Salary Range		Annual	Hourly
C00	MIN	25979	12.49
	MID	34071	16.38
	MAX	42162	20.27

Job Description

3/1/79 Positions in this class have the responsibility of set up, assembly, operation, repair and maintenance of a variety of machanic and laboratory tools and apparatus. **TYPICAL TASKS** (These examples do not include all possible tasks in this work and do not limit the assignment of related tasks in any position of this class.) **Regular, On-Going Tasks** Performs the set-up and operation on a variety of machine tools including lathes, milling machines, drill presses, surface grinders, band saws, and cutoff saws. Grinds own drills and tool bits. Sets up and operates sheet metal tools such as shear, slip roller, and brake; woodworking tools such as bench and panel saws; and the acetylene-oxygen torch for soldering and brazing. Fabricates parts and assemblies working from blueprints, detailed sketches, or by duplication of a sample part or model. Repairs a variety of laboratory, teaching, diagnostic, clinical, or research apparatus, instruments or instrumentation by installing replacement parts. **SUPERVISION** These positions are non-supervisory in nature.

REQUIRED QUALIFICATIONS High school graduation, completion of a vocational training course or of a formal apprenticeship in machine shop, and some broad experience in general machine work should provide the necessary background for this work. Equivalent combination of related academic or work experience.

SU SENIOR LABORER - 6014

Probation Period: Probationary Period of 720 Hours - Straight Time

Bargaining Unit 1: 030 = Service, Maintenance, and Labor Unit - represented by Teamsters Local 320

Salary Range		Annual	Hourly
B00	MIN	24086	11.58
	MID	26853	12.91
	MAX	29619	14.24

Job Description

11/1/88 This position performs a variety of manual labor tasks from detailed instructions. **TYPICAL TASKS** (These examples do not include all possible tasks in this work and do not limit the assignment of related tasks in any position of this class.) Regular, On-Going Tasks Cuts weeds, brush, and grass. Rakes lawns and trims fields. Waters greenhouse plants. Cleans pots. Sprays plants. Moves and assists in transplanting plants from greenhouse to field. Weeds farm or garden plots. Shells, grades, packs, and stores seed. Cleans and repairs catch basins, storm sewers, and sewer systems. Digs trenches and tunnels. Mixes concrete, plaster, and mortar. Wheels concrete, brick, stone, and sand. Sets up rough forms for construction work and removes forms and scaffolds. Operates tractor and other farm machines in plowing, discing, harrowing, seeding, cultivating, harvesting, and combining. Cleans, greases, oils, and services tractors, trucks, and other farm equipment. Keeps oil and gasoline records. Assembles and makes adjustments and minor repairs to farm machinery. Cleans, greases, oils, changes oil filter and performs other routine vehicle maintenance. May assist in some mechanical work. Loads and unloads trucks. Dismantles, packs, and reassembles supplies, laboratory instruments, and other materials. Moves furniture, office equipment, tables, benches, chairs, athletic equipment, refuse, garbage, supplies, and various kinds of heavy equipment. Maintains such athletic areas as baseball diamonds, cinder track, football fields, and tennis courts. Puts up bleachers and stand and erects and dismantles athletic equipment. Assists in breeding of livestock and calving, lambing, foaling, and farrowing. Grooms livestock. Keeps simple feed, weight, and milk production records. Operates milking machines. **SUPERVISION** Positions in this classification typically work under the immediate direction of a supervisor and are non-supervisory in nature.

REQUIRED QUALIFICATIONS Graduation from elementary school and six months of general labor experience. A valid Minnesota Drivers License ("A" or "C" Class) may be required for some positions.

TU ASSISTANT LABORATORY MACHINIST - 4981

Probation Period: Probationary Period of 6 Months

Bargaining Unit 1: 070 = Technical Unit - represented by AFSCME Council 6

Point Range: 1276 – 1450

Salary Range		Annual	Hourly
C00	MIN	23816	11.45
	MID	30701	14.76
	MAX	37586	18.07

Job Description

4/1/87 Positions in this class are entry level laboratory machinists. **TYPICAL TASKS**(These examples do not include all possible tasks in this work and do not limit the assignment of related tasks in any position of this class.) **Regular, On-Going Tasks** Performs the set-up and operation on a variety of machine tools including lathes, milling machines, drill presses, surface grinders, band saws, and cutoff saws. Grinds own drills and tool bits. Sets up and operates sheet metal tools such as shear, slip roller, and brake; woodworking tools such as bench and panel saws; and the acetylene-oxygen torch for soldering and brazing. Working on less complex projects; fabricates parts and assemblies working from blueprints, detailed sketches, or by duplication of a sample part or model. Repairs a variety of laboratory, teaching, diagnostic, clinical, or research. **SUPERVISION** Positions in this class are considered non-supervisory.

REQUIRED QUALIFICATIONS High school graduation, completion of a vocational training course or of a formal apprenticeship in machine shop or equivalent work experience, should provide the necessary background for this work.

TU ELECTRONICS TECHNICIAN - 4975

Probation Period: Probationary Period of 6 Months

Bargaining Unit 1: 070 = Technical Unit - represented by AFSCME Council 6

Point Range: 1326 – 1500

Salary Range		Annual	Hourly
C00	MIN	23816	11.45
	MID	30711	14.77
	MAX	37606	18.08

Job Description

2/1/79 This position has the responsibility of constructing, operating, installing, repairing and servicing a wide variety of electrical-electronic equipment. **TYPICAL TASKS** (These examples do not include all possible tasks in this work and do not limit the assignment of related tasks in any position of this class.) **Regular, On-Going Tasks** Constructs electronics circuits and instruments incorporating solid state or vacuum tube components for research and/or service purposes. Examples of this type of equipment might include oscilloscopes, amplifiers, transmitters and receivers. Repairs and services a wide variety of electrical-electronic equipment and apparatus such as voltmeters, galvanometers, amplifiers and electronic supply units. Employs special techniques such as the soldering techniques required by NASA and the special rules governing the installation of solid state or miniature circuit parts in electronic construction. Constructs rough operating or "bread board" models of electronic systems for testing purposes. Operates a wide variety of electronic measuring and data recording devices such as oscilloscopes, amplifiers, transmitters, and receivers. Adjusts and resets these devices as necessary. **SUPERVISION** Persons in this class may act as lead worker over two or three employees doing routine wiring and assembling of components, planning, and checking their work.

REQUIRED QUALIFICATIONS High school graduation and two years of recent trade school training or military training in electronics should provide the necessary background for this work. Equivalent combinations of related experience and education may be substituted.

TU ENGINEERING ASSISTANT - 4961

Probation Period: Probationary Period of 6 Months

Bargaining Unit 1: 070 = Technical Unit - represented by AFSCME Council 6

Point Range: 1326 – 1525

Salary Range		Annual	Hourly
C00	MIN	22006	10.58
	MID	28236	13.58
	MAX	34466	16.57

Job Description

6/1/80 This position has the responsibility of assisting in various phases of contract research, graduate level projects or laboratory service programs. **TYPICAL TASKS** (These examples do not include all possible tasks in this work and do not limit the assignment of related tasks in any position of this class.) Regular, On-Going Tasks Measures and draws architectural alterations to bring blueprints up-to-date. Completes detailing of supplied designs. Traces plans and does simple and routine mechanical and electrical drafting. Performs photography and developing duties. Assists surveying teams. Acts as rodman or chainman. Performs elementary transit or level work. Records field data. Prepares tables and illustrations from various data. Calculates or tabulates such data as areas, quantities, costs, and stresses. Assists in building research equipment such as oscilloscope amplifiers and electronic multipliers. Adapts existing equipment to new uses. Assists in sample preparation and collection and analysis of data. Sets up, operates, services and tests electronic devices and other equipment. Determines and applies appropriate circuits to electronic equipment for the collection of research data. Draws schematic diagrams of new circuits. **SUPERVISION**

REQUIRED QUALIFICATIONS One year of college engineering coursework, trade school, and/or work experience.

**PR JUNIOR SCIENTIST – 8350 and
SP JUNIOR SCIENTIST - 7350**

Probation Period: Probationary Period of 1 Year

Bargaining Unit 1: 120 = Non-Instructional Professional Unit - not currently represented by a union

Point Range: 1376 - 1525

Salary Range		Annual	Hourly
A04	MIN	23483	11.29
	MID	31335	15.07
	MAX	39187	18.84

Job Description

4/1/79 Positions in this class have the responsibility of performing professional laboratory work in a research or clinical laboratory or carry out laboratory or field studies involving methods and techniques of the physical, natural, or social sciences. **TYPICAL TASKS** (These examples do not include all possible tasks in this work and do not limit the assignment of related tasks in any position of this class.) **Regular, On-Going Tasks** Carries out complex, multi-step laboratory procedures specified in protocols or the oral instructions of a senior research worker. Selects and adapts equipment, instruments and methods to meet requirements of the laboratory program or specific research needs. Employs a wide variety of standard or experimental techniques to conduct laboratory preparations of histological, chemical, hematological or bacteriological specimens, anthropological, psychological or ecological. Conducts assays on minerals, soil, wood, chemical compounds and other minerals. Tabulates and graphs data and sees to it that the technicians keep detailed workbooks on all procedures. Participates in ordering, preparing and laying out supplies, equipment and apparatus. Confers with other staff personnel in drafting work schedules and plans for execution of the more complex laboratory studies. Operates, maintains and calibrates apparatus and equipment common to area of assignment. Modifies and adapts laboratory equipment to the special demands of the laboratory. Reviews literature as suggested by the investigation. Selects relevant facts, techniques and procedures from the literature. Summarizes the findings from the literature. Abstract medical records for data on family medical history, particular disease history and use of medications. Assist in case selection and in scheduling follow-up interviews. **SUPERVISION** May have the authority to hire, transfer, suspend, promote, discharge, assign work, reward, discipline, direct the work of technicians, attendants or students performing routine work.

REQUIRED QUALIFICATIONS A Bachelor's degree with specialization in a natural or social science discipline, or education in the specific or related field of science and work experience related to the job totaling at least four years in combination, should provide the necessary background for this work.

SP JUNIOR LABORATORY TECHNICIAN - 7944

Probation Period: Probationary Period of 6 Months

Bargaining Unit 1: 130 = Supervisory Employees Unit - not currently represented by a union

Point Range: 1076 - 1250

Salary Range		Annual	Hourly
C02	MIN	15621	07.51
	MID	19656	09.45
	MAX	23691	11.39

Job Description

7/1/86 This is a first level technical position with the responsibility for performing a variety of routine laboratory tasks in both natural and social science research studies. Positions in this class are distinguished from higher or lower level classes through job analysis. **TYPICAL TASKS** (These examples do not include all possible tasks in this work and do not limit the assignment of related tasks in any position of this class.)

Regular, On-Going Tasks Performs routine laboratory tests such as urinalysis, sedimentation rates, agglutination reactions and total blood counts. Performs routine histological work. Prepares slides by dehydrating, embedding, sectioning, mounting and staining tissue. Keeps related records. Prepares standard solutions or media according to prescribed formula. Transfers cultures and prepares smears. Operates routine laboratory equipment such as balances, pH meters, centrifuges, etc. Records results, calculates data and constructs simple graphs and charts. Screen, interview patients/participants in a social science research project. **SUPERVISION** Work in this class follows established laboratory techniques and procedures, and supervision is readily available.

REQUIRED QUALIFICATIONS High school graduation or the equivalent with some science courses and laboratory experience should provide the necessary background for work of this class. Equivalent combination of relevant academic and work experience may be substituted.

SP SENIOR LABORATORY TECHNICIAN - 7945

Probation Period: Probationary Period of 6 Months

Bargaining Unit 1: 130 = Supervisory Employees Unit - not currently represented by a union

Point Range: 1251 - 1425

Salary Range		Annual	Hourly
C13	MIN	19781	09.51
	MID	25626	12.32
	MAX	31470	15.13

Job Description

7/1/90 Positions in this class have the responsibility of performing various laboratory tests following established specialized laboratory procedures and techniques and instructions in the use of operation of laboratory equipment, routine laboratory record keeping practices, and laboratory safety practices.

TYPICAL TASKS (These examples do not include all possible tasks in this work and do not limit the assignment of tasks in any position of this class.) Regular, On-Going Tasks Conducts specialized laboratory studies employing standard procedures of the relevant social or natural science or achieve specific objectives in basic experimental or applied research. Records, tabulates and graphs data. Keeps workbook. Prepares tissue specimens for various microscopic examinations such as serial sections, fluorescent sections, frozen sections, light microscope sections, and electron microscope sections. This involves preparing a wide variety of different tissues using special cutting and staining procedures. Develops new techniques by the process of trial and error. Participates in ordering, preparing and laying out supplies, equipment and apparatus. Provides technical assistance to professional staff personnel, graduate students and others in executing complex laboratory studies. Operates or uses a variety of laboratory equipment used in the collection, processing, classification, description, measurement and analysis of specimens, or data. For example: microscopes, slide rule, calculator, calorimeter, pH meter, spectrophotometer, auto technician, micro tome, blood gas analyzer, chromatography or electrophoresis apparatus, distillation and extraction glassware, centrifuges, radiation counters, strain gauges, and drafting and lettering instruments. Some positions in the class may require the operation of computer terminals. **SUPERVISION** Positions in this class are generally non-supervisory. However, some positions may act as lead workers over one or two assistants including training in work procedures and assigning and reviewing work.

REQUIRED QUALIFICATIONS High school graduation or the equivalent with some science courses and two years of experience in relevant academic and work experience may be substituted.

SP PRINCIPAL LABORATORY TECHNICIAN - 7946

Probation Period: Probationary Period of 6 Months

Bargaining Unit 1: 130 = Supervisory Employees Unit - not currently represented by a union

Point Range: 1426 - 1600

Salary Range		Annual	Hourly
C21	MIN	24586	11.82
	MID	33145	15.94
	MAX	41704	20.05

Job Description

12/1/80 Positions in this class are responsible for the supervision and conduct of restricted or limited investigations or experiments in an assigned area to aid in the solution of a research problem using established, complex laboratory techniques and procedures. **TYPICAL TASKS** (These examples do not include all possible tasks in this work and do not limit the assignment of related tasks in any position of this class.) **Regular, On-Going Tasks** Supervises and carries out laboratory procedures specified in protocols, schedules, or the oral instructions of a senior research worker. Selects and adapts equipment, instruments, and methods to meet requirements of the laboratory program or specified research needs. Employs a variety of standards of experimental methods to conduct laboratory preparations of histological, chemical, hematological, bacteriological specimens, or questionnaire material in social science projects. Conducts assays, or interviews participants in a social science research project, tabulates, graphs, and performs minor evaluations of data. Operates a variety of complex laboratory equipment used in the collection, processing, classification, measurement, or analysis of specimens or data. For example: the electron microscope, micro tome, spectrophotometer, auto analyzer, analytical centrifuge, automatic amino acid analyzer computer, distillation and extraction glassware, and drafting and lettering instruments. Writes summary reports on results of work and confers with supervisor on interpretation of results and new avenues of investigation. **SUPERVISION** Has the authority to hire, transfer, suspend, promote, discharge, assign work, reward, discipline, and direct the work of Senior Laboratory Technicians, Laboratory Technicians, or other laboratory personnel in their performance of laboratory techniques and procedures.

REQUIRED QUALIFICATIONS High school graduation or the equivalent with specialization in science and related coursework or experience related to the job totaling at least four years in combination, should provide the necessary background for this work.

U DIGITAL EQUIPMENT SERVICE SPECIALIST - 4978

Probation Period: Probationary Period of 6 Months

Bargaining Unit 1: 070 = Technical Unit - represented by AFSCME Council 6

Point Range: 1651 – 1825

Salary Range		Annual	Hourly
TC00	MIN	30430	14.63
	MID	41142	19.78
	MAX	51854	24.93

Job Description

12/1/80 This position has the responsibility of performing field service maintenance and installation on digital computers, terminals, data communications systems, and performing as a lead worker on this maintenance and installation. **TYPICAL TASKS** (These examples do not include all possible tasks in this work and do not limit the assignment of related tasks in any position of this class.) **Regular, On-Going Tasks** Performs maintenance, malfunction analysis and diagnosis, repair, modification, calibration, alignment, refurbishment, enhancement, site preparation, and installation of digital equipment. Examples of this type of equipment are: remote batch terminals, interactive hard copy (impact and thermal) terminals, interactive display terminals, line printers, card readers, magnetic tape drives, disk drives, analog/digital converters, plotters (electrostatic and mechanical), communications multiplexers, various digital system interfaces, microcomputers, minicomputers, and data communications systems, including dedicated and dial-up networks. When required, performs minimal supervision of electronic technicians, under the direction of a field service maintenance supervisor. Assures the operational integrity of University communications systems, terminal facilities, and computer systems. Assists with the implementation of service and test procedures, diagnostic programs, and test equipment selection, as required. Evaluates terminals and digital communications equipment being considered for purchase, for reliability and serviceability, as required. Advises logistics staff as to service parts and spares provisioning. Performs acceptance testing of new equipment upon completion of installation. Advises supervisors as to conformance of that equipment with University purchasing specifications. Devises and performs periodic maintenance. Provides on-the-job training (OJT) to other Field Engineering staff members under the guidance of a field service maintenance supervisor, as required. Advises staff members and students on operation of equipment and performance characteristics. Analyzes interface characteristics of terminals, computers, and ancillary devices, and fabricates or procures appropriate interconnecting hardware. **SUPERVISION** Has the authority to assign and direct the work of subordinate electronic technicians, when so directed by the field service maintenance supervisor.

REQUIRED QUALIFICATIONS Completion of a two-year technical school with heavy emphasis on digital electronics plus four or more years experience in digital electronics should provide the necessary background for this work. For each year of technical school, two years of experience of the type delineated in the proceeding "Regular, On-going Tasks" may be substituted. Much of the equipment worked on also required specific factory training or extensive OJT. Much of the work is performed at clients' facilities throughout the campus. Persons in this class must be physically able to move equipment and tools, weighing as much as sixty pounds, to and from these sites, unassisted. Also installation or removal of this equipment can be physically demanding.

TU ELECTRONICS TECHNICIAN - 4975

Probation Period: Probationary Period of 6 Months

Bargaining Unit 1: 070 = Technical Unit - represented by AFSCME Council 6

Point Range: 1326 – 1500

Salary Range		Annual	Hourly
C00	MIN	23816	11.45
	MID	30711	14.77
	MAX	37606	18.08

Job Description

2/1/79 This position has the responsibility of constructing, operating, installing, repairing and servicing a wide variety of electrical-electronic equipment. **TYPICAL TASKS** (These examples do not include all possible tasks in this work and do not limit the assignment of related tasks in any position of this class.)

Regular, On-Going Tasks Constructs electronics circuits and instruments incorporating solid state or vacuum tube components for research and/or service purposes. Examples of this type of equipment might include oscilloscopes, amplifiers, transmitters and receivers. Repairs and services a wide variety of electrical-electronic equipment and apparatus such as voltmeters, galvanometers, amplifiers and electronic supply units. Employs special techniques such as the soldering techniques required by NASA and the special rules governing the installation of solid state or miniature circuit parts in electronic construction. Constructs rough operating or "bread board" models of electronic systems for testing purposes. Operates a wide variety of electronic measuring and data recording devices such as oscilloscopes, amplifiers, transmitters, and receivers. Adjusts and resets these devices as necessary. **SUPERVISION** Persons in this class may act as lead worker over two or three employees doing routine wiring and assembling of components, planning, and checking their work.

REQUIRED QUALIFICATIONS High school graduation and two years of recent trade school training or military training in electronics should provide the necessary background for this work. Equivalent combinations of related experience and education may be substituted.

SU GENERAL MECHANIC - 6052

Probation Period: Probationary Period of 720 Hours - Straight Time

Bargaining Unit 1: 030 = Service, Maintenance, and Labor Unit - represented by Teamsters Local 320

Salary Range		Annual	Hourly
B00	MIN	25542	12.28
	MID	28818	13.86
	MAX	32094	15.43

Job Description

11/1/91 This position is responsible for routine maintenance, repair and inspection of building systems and components, and assisting in the non routine maintenance and repair of various types of equipment such as pumps, motors, locks, air compressors and chillers. TYPICAL TASKS (These examples do not include all possible tasks in this work and do not limit the assignment of related tasks in any position of this class.)

Regular, On-Going Tasks Performs routine preventive maintenance programs in University's facilities and equipment such as: Inspects and lubricates fans, motors and other equipment as assigned. Replaces belts, bearings and motor brushes. Inspects steam, water, sewer, air and vacuum lines. Assists with the periodic overhaul of air conditioning equipment, hot water heaters, steam reducing valves, steam traps, motors and other equipment as needed. Replaces filtering materials in all building systems and components. Operates building mechanical equipment. Starts and stops equipment. Charts temperatures and pressures in equipment logs. Assembles and/or installs shelving and cabinets. Repairs and modifies basic lab equipment. Monitors and responds to alarms and takes appropriate action as needed. Reports deficiencies in building systems and components to supervisor as appropriate. Cleans, traps and drains. Repairs furniture, water systems, dishwashers, door locks and hardware. Other duties as assigned. SUPERVISION Positions in this classification may act as lead worker over other employees.

REQUIRED QUALIFICATIONS Must be able to follow detailed written work orders, plans and drawings. Vocational education in mechanical work and one year experience in general mechanical work to total two years. Experience may be substituted for education on a year for year basis. Satisfactory completion of an approved University training program may also be substituted for all education and experience requirements.

SU MAINTENANCE AND OPERATIONS MECHANIC - 6055

Probation Period: Probationary Period of 720 Hours - Straight Time

Bargaining Unit 1: 030 = Service, Maintenance, and Labor Unit - represented by Teamsters Local 320

Salary Range		Annual	Hourly
B00	MIN	29557	14.21
	MID	32864	15.80
	MAX	36171	17.39

Job Description

8/1/82 These positions are responsible for the mechanical maintenance and repair of a wide variety of various types of equipment such as pumps, motors, lock, air compressors, etc. **TYPICAL TASKS** (These examples do not include all possible tasks in this work and do not limit the assignment of related tasks in any position of this class.) **Regular, On-Going Tasks** Performs mechanical maintenance and repair work in building hardware and equipment. Replaces fan bearings, switches, cords, and plugs on portable and non-building systems equipment. Repairs and maintains pumps and air compressors by changing filters, cleaning coils and cleaning duct work. Services, charges, and recharges fire extinguishers. Sets up lock combinations and rekeys buildings. Cuts keys and may install some locks. Lubricates and changes oil for gasoline driven equipment, such as air compressors and water pumps. Repairs and maintains venetian blinds and shades. Purchases new tools, and replaces lost or worn out tools used by trades employees. Repairs small engines Performs all types of welding. **SUPERVISION** Positions in this classification may act as lead worker over other employees and may plan or schedule work, make assignments, train and instruct, review performance or otherwise direct other employees.

REQUIRED QUALIFICATIONS Must be able to follow written work orders, plans, and drawings. Vocational education in mechanical work and mechanical work experience to total three years. Relevant experience may be substituted for education on a year for year basis.

**PR JUNIOR SCIENTIST – 8350 and
SP JUNIOR SCIENTIST - 7350**

Probation Period: Probationary Period of 1 Year

Bargaining Unit 1: 120 = Non-Instructional Professional Unit - not currently represented by a union

Point Range: 1376 - 1525

Salary Range		Annual	Hourly
A04	MIN	23483	11.29
	MID	31335	15.07
	MAX	39187	18.84

Job Description

4/1/79 Positions in this class have the responsibility of performing professional laboratory work in a research or clinical laboratory or carry out laboratory or field studies involving methods and techniques of the physical, natural, or social sciences. **TYPICAL TASKS** (These examples do not include all possible tasks in this work and do not limit the assignment of related tasks in any position of this class.) **Regular, On-Going Tasks** Carries out complex, multi-step laboratory procedures specified in protocols or the oral instructions of a senior research worker. Selects and adapts equipment, instruments and methods to meet requirements of the laboratory program or specific research needs. Employs a wide variety of standard or experimental techniques to conduct laboratory preparations of histological, chemical, hematological or bacteriological specimens, anthropological, psychological or ecological. Conducts assays on minerals, soil, wood, chemical compounds and other minerals. Tabulates and graphs data and sees to it that the technicians keep detailed workbooks on all procedures. Participates in ordering, preparing and laying out supplies, equipment and apparatus. Confers with other staff personnel in drafting work schedules and plans for execution of the more complex laboratory studies. Operates, maintains and calibrates apparatus and equipment common to area of assignment. Modifies and adapts laboratory equipment to the special demands of the laboratory. Reviews literature as suggested by the investigation. Selects relevant facts, techniques and procedures from the literature. Summarizes the findings from the literature. Abstract medical records for data on family medical history, particular disease history and use of medications. Assist in case selection and in scheduling follow-up interviews. **SUPERVISION** May have the authority to hire, transfer, suspend, promote, discharge, assign work, reward, discipline, direct the work of technicians, attendants or students performing routine work.

REQUIRED QUALIFICATIONS A Bachelor's degree with specialization in a natural or social science discipline, or education in the specific or related field of science and work experience related to the job totaling at least four years in combination, should provide the necessary background for this work.

SP MECHANICAL CONSTRUCTION SUPERINTENDENT - 7086

Classification Number: 7086

Job Family: Q

Probation Period: Probationary Period of 1 Year

Bargaining Unit 1: 130 = Supervisory Employees Unit - not currently represented by a union

Bargaining Unit 1 Code: M

FOC: 1

Job Group: S - Exempt

Salary Schedule: R / 00

Rate by Special Arrangement as Approved

Salary Effective: 6/19/00

Job Description

6/1/79 This position has the responsibility to serve as mechanical systems representative for the University to insure technical correctness and to help insure coordination of effort between prime and subcontractor personnel, architect's representative, University engineering staff and other parties working on construction projects. TYPICAL TASKS (These examples do not include all possible tasks in this work and do not limit the assignment of related tasks in any position of this class.) Regular, On-Going Tasks Serves as a mechanical systems representative for the University to improve coordination of effort between prime and subcontractor personnel, architects' representatives, University engineering staff and other parties working on construction projects. Insures adherence to plans and specifications. Provides technical counsel to jobsite Construction Superintendents employed by the University. Maintains workmanship standards on mechanical systems construction. Reviews construction proposals, specifications, and drawings. Inspects proposed work sites. Reviews pertinent city, county, state, and federal codes relating to mechanical construction. Secures certificates of insurance coverages to be furnished by prime and sub-contracting firms. Coordinates and serves as technical advisor for trade foremen, journeymen and others engaged in the building trades on University projects. Confers with contractors' representatives, University Construction Superintendents and trade foremen about matters relating to on-the-job safety, materials standards and construction methods. Inspects, tests and prepares reports on materials, fabricated apparatus, fixtures and supplies furnished for incorporation into new construction. Makes recommendations on changes in plans or specifications. Expedites delivery of materials. Inspects work in progress and records essential data. Prepares and submits weekly reports on construction. Reviews, endorses, and forwards monthly requests for partial payment. Approves or makes recommendations on substitution of material and equipment. Maintains complete working records at job sites for use by builders and inspectors. Communicates with contractor personnel, industrial suppliers, University representatives and other agencies or individuals having authorized interest in the erection of new construction. Participates in arranging for and conducting final mechanical systems inspections. Completes evaluation forms relating to performances of prime contractors. Checks for clean-up, salvage and restoration of worksites. Forwards all operating records, plans, and drawings to the Engineering Records Department upon acceptance of job. SUPERVISION Positions in this class involve considerable walking during tours of inspection including climbing over obstacles and may require outdoor activity in inclement weather.

REQUIRED QUALIFICATIONS Journeyman or master plumber or licensed steam fitter or mechanical engineering degree and ten years experience in construction field.